

holder member; the drive means comprising a spring member which is engageable with the carriage so as to be yielded in an amount corresponding to the amount of movement of the carriage during approach of the carriage to the holder member, and releasing means for releasing the spring member from its yielded condition when the carriage is held by the holder member, the inverting mechanism being driven by a restoring force of the spring member.

### BRIEF DESCRIPTION OF THE DRAWINGS

In the accompanying drawings:

FIG. 1 is a structural view of a conventional disc player;

FIG. 2 is a cross-sectional view of its clasper;

FIGS. 3 and 4 are cross-sectional view of claspers used in a disc player according to the present invention;

FIG. 5 is its perspective view;

FIG. 6 is a block diagram of the disc player according to the present invention;

FIGS. 7 and 8 are cross-sectional views explanatory of clamping conditions in accordance with another embodiment of the inventions;

FIGS. 9 and 10 are plan and front-elevational views of its drive means, respectively;

FIG. 11 is an exploded view of the drive means;

FIGS. 12, 13, and 14 are plan, front-elevational and side-elevational views of the drive means, respectively;

FIG. 15 is a partly cross-sectional, side-elevational view of an important portion of a double-sided playing disc player according to the present invention;

FIG. 16 is a view as seen along the line XVI—XVI of FIG. 15;

FIG. 17 is a fragmentary, detailed view of the important portion of the double-sided playing disc player of FIG. 15;

FIG. 18 is a partly cross-sectional, side-elevational view of an important portion of another double-sided playing disc player according to the present invention;

FIG. 19 is a view as seen along the line XIX—XIX of FIG. 18; and

FIGS. 20 and 21 are fragmentary, detailed views of the important portion of the double-sided playing disc player of FIG. 18.

### DESCRIPTION OF THE PREFERRED EMBODIMENTS

A first embodiment of the invention will now be described with reference to FIGS. 3 to 6.

FIG. 6 is a block diagram of a disc player according to the present invention. When the selection of faces to be reproduced is instructed by operating an input means 41, a control circuit 42 comprising a microcomputer or the like controls a drive means 43 so as to be move a pickup 5 to the side of the selected face. For example, if the face A is selected, the pickup 5 is disposed on the side of the turntable 4 (on the lower side of a disc 1). If the face B is selected, the pickup 5 is disposed on the side opposite to the turntable 4 (on the upper side of the disc 1). In the case where two pickups 5 are disposed on the side of the turntable and on the side opposite to the turntable, respectively, that pickup corresponding to the selected face is used.

When the face to be reproduced is selected, the control circuit 42 controls a selection means 44 so as to select and drive a clasper corresponding to the face to be reproduced. More specifically, according to the present invention, there are provided two claspers 11

and 31 as shown in FIG. 5, and one of the claspers can be moved to an operative position P (the position corresponding to the turntable 4) and positioned there by angularly moving an arm 51 with a pin 50, which extends through an aperture 53, serving as a pivot. More specifically, when a motor 61 is energized, a gear 62 is rotated, so that a gear 63 in mesh with the gear 62 as well as a gear 64 connected integrally to the gear 63 is rotated. A gear 56 of a rack 54 is in mesh with the gear 64, so that the rack 54 is moved in left- and right-hand directions in the FIG. 5. Slots 55 are formed through the rack 54, and pins 57 are passed through the slots 55, so that the movement of the rack 54 is guided by the pins 57. A pin 52 formed on the rack 54 is passed through a slot 58 of the arm 51, so that the arm 51 is angularly moved about the pin 50 in response to the movement of the rack 54. The pins 50 and 57, the motor 61 and the gears 62, 63 and 64 are fixedly mounted on a clasper holder which is not shown. When the face A is selected, the clasper 31 is selected, and when the face B is selected, the clasper 11 is selected.

FIG. 4 shows a condition of clamping by the clasper 31. When the disc 1 is placed on the turntable 4, the centering hub 6 mounted at the inner periphery of the turntable 4 is inserted into the center hole of the disc 1. The centering hub 6 is pressed by the disc 1 and is moved downwardly against the bias of the spring 7, with the spindle 3 serving as a guide. At this time, the disc 1 is centered by the outer peripheral tapered surface of the centering hub 6. Since the centering hub 6 is disposed on the lower side (on the side of the turntable), the center of the center hole of the lower one of the two bonded discs is brought into alignment with the center of rotation of the spindle 3.

The clasper 31 is moved downwardly from an upper position, and the distal end of the spindle 3 is inserted into a hole 34 in a central projection 33 of the clasper, the distal end of the hole 34 is formed into a tapered surface 35 so as to facilitate the insertion of the spindle 3 into the hole 34. Magnets 32 for producing a clamping force are fixedly secured to the clasper 31, and the clasper 31 clamps the disc 1 on the turntable 4 through its attractive force applied to the turntable 4. The clamping force may of course be obtained by a spring or the like.

At this time, the pickup 5 is disposed on the turntable side (the lower side of the disc 1), and reproduces the lower face (face A).

FIG. 3 shows a condition of clamping by the clasper 11. The disc 1, when placed on the turntable 4, is once centered by the centering hub 6 in the manner described above. However, when the clasper 11 is moved downwardly, the distal end of the spindle 3 is inserted into a central hole 17 of a centering hub 14 mounted on the clasper 11. To facilitate this insertion, the distal end of the hole 17 is formed into a tapered surface 16. A spring 21 is set so as to produce a urging force greater than that of the spring 7. Therefore, the centering hub 6 urged by the spring 7 is pressed by the centering hub 14 urged by the spring 21 and is moved downwardly. When the centering hub 14 moves downwardly with the spindle 3 serving as a guide, a tapered surface at its outer periphery presses the upper edge of the center hole of the disc 1 to center it.

Since the centering hub 14 is disposed on the upper side of the disc 1, the center of the center hole of the upper disc is brought into alignment with the center of rotation of the spindle 3. In a manner as described